

REVISION OF *ACROTOCARUS* BANKS  
(ACARI: CANESTRINIIDAE)

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*Abstract.*—The genus *Acrotocarus* Banks, 1915, is redefined and its type-species, *A. mirabilis* Banks, is redescribed. Two additional species are placed in this genus: *A. alutaceus* (Turk), new combination, and *A. crataepus*, new species.

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The canestriniid genus *Acrotocarus* Banks, 1915, based on *A. mirabilis* Banks, has been overlooked by later students of these beetle-associated mites because the author himself misinterpreted the structure of the holotype male. The diagnostic feature of this genus is given in the original description as follows: “. . . body in front with a T-shaped process, the front part of which bears a large, bilobed, hyaline membrane.” This interpretation of the caudal appendages as mouthparts and the upside down illustration probably happened because, on the imperfectly cleared type-specimen, the gnathosoma was folded under and hidden by opaque pedal musculature.

An allied species was subsequently described as *Amansia alutacea* by Turk, 1948. Turk assigned his species to *Amansia* Oudemans, 1937, as based on *Dermaleichus chrysomelinus* Koch. The present study of *Acrotocarus mirabilis* Banks indicates that *Acrotocarus* is the first name applied to those species with males having wide caudal flaps. We believe *Amansia alutacea* Turk is a congener and therefore assign *Amansia alutacea* to *Acrotocarus*.

The genus *Acrotocarus* Banks is restructured to include *A. mirabilis* Banks, *A. alutaceus* (Turk) and one new species.

*Acrotocarus* Banks

*Acrotocarus* Banks, 1915, 26:152-153.

Description.—Broad-bodied mites having very weakly sclerotized dorsal integument, with 1 small, inconspicuous prodorsal plate. Generic assignment based principally on several peculiarities of males. Very distinctive is the pair of membranous caudal flaps attached to main body by constricted stalk or peduncle. Caudal flaps bear 1 pair of ultralong, flagelliform setae.

Elongate anal aperture of males lies very close behind genitalic parts, almost surrounded by a horseshoe-shaped sclerite. Conspicuous anal suckers lacking. Inclusive counts of setae and special sensilla on legs I-IV: Tarsi 12-7-4-5, tibiae 1-1-1-1, genua 3-3-1-0, femora 1-1-0-0. Tarsi of legs I-IV bear 1 unpaired spurlike ventral seta at their distal ends; all of these setiform in females; those on legs III and IV of males may be enlarged and clawlike. Four podomeres on leg III of males bear apophyses in form of ridges or spines; leg IV conventional in form. Apodemata I not joined at mid-line.

Type-species.—*Acrotocarus mirabilis* Banks, by original designation.

Remarks.—The recognition of the genus and the distinctions between the three known species rest essentially on the form of the caudal flaps of males. Females of *Acrotocarus* are apt to be difficult to distinguish from females of other genera of the Canestriniidae, but the identity and distribution of host beetles may assist with their identification. The canestriniids taken from various chrysomelid beetles were specifically identified only when such samples or series contained at least one male specimen.

The modification of the opisthosoma of males complicates the matter of homologizing some of the setae with those of other canestriniids. The setae on the podosoma and appendages of these mites are designated according to terminologies developed by Grandjean (1935) and Zachvatkin (1941) as summarized by Hughes (1959). However, the names and abbreviations applied to setae on the opisthosoma are improvised, with no certainty as to equation with setae of allied forms.

Measurements of dried and compressed specimens collected from dead beetles do not give trustworthy data for comparative purposes. Consequently, the few measurements given (micrometers, in parentheses) are for parts selected as likely to give reasonably reliable data.

We are grateful to R. E. White, Systematic Entomology Laboratory, IIBIII, Agric. Res., Sci. and Educ. Admin., USDA, for lending the collection of *Physonota* spp. in the United States National Museum, Washington, D.C.

*Acrotocarus mirabilis* Banks

Figs. 1, 2

*Acrotocarus mirabilis* Banks, 1915, 26:152-153.

Male.—Dorsal integument irregularly crinkled, with a very small prodorsal plate. Dorsal setae comprise 3 size groups. Four pairs ultralong, smooth, too attenuated and coiled to allow acceptable measurements. These are: external scapulars (*sce*), external humerals (*he*), sacralis (*sa*) and lateral caudals (*lc*). Internal verticals moderately long (55). All other dorsomedian and dorsolateral body setae uniformly minute (ca. 8), rigid, blunt-tipped. Only 2 pairs of minute dorsomedian setae. Minute postanal setae (*mpa*) situated

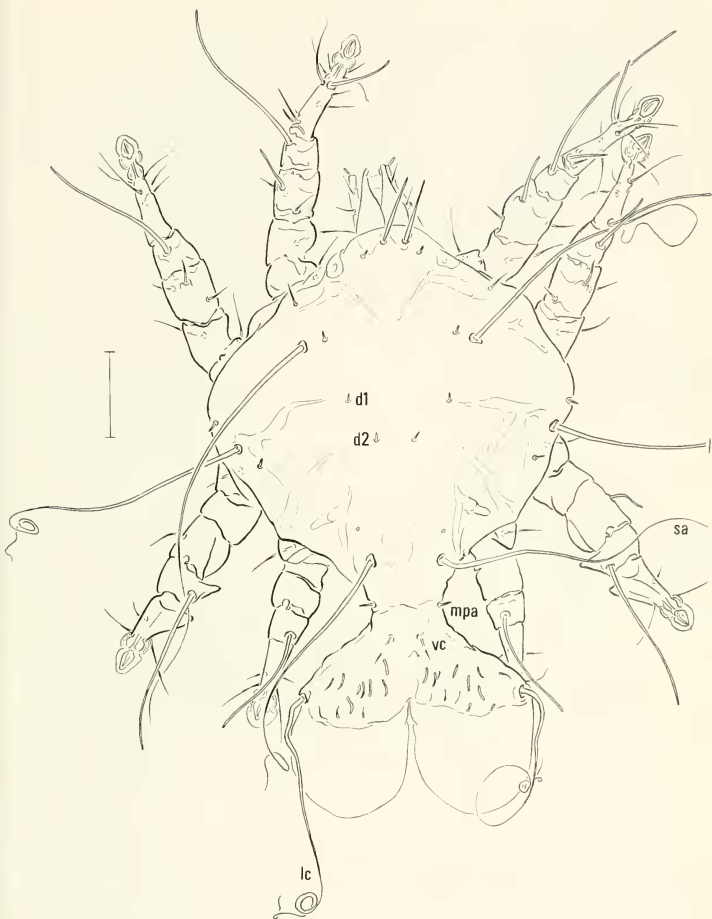


Fig. 1. *Acrotocarus mirabilis*, male, dorsal.

on narrowest portion of caudal peduncle. V-shaped apodeme associated with coxa IV bears a laterally-directed, slipper-shaped, hollow arm, its closed end pointed outward. Boundary between fleshy basal part of opisthosoma and hyaline caudal flaps comprises (roughly) a transverse line be-

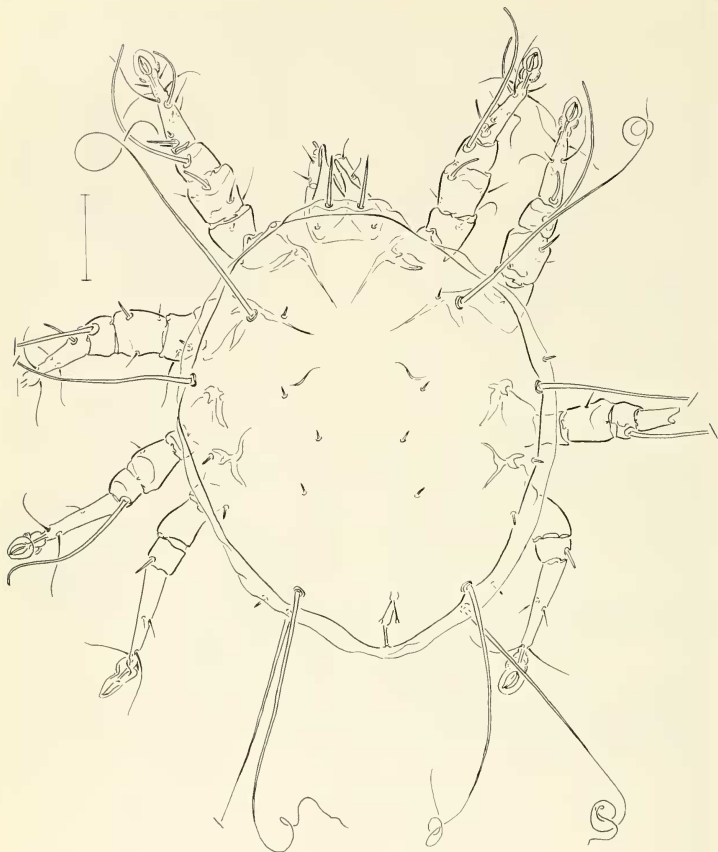


Fig. 2. *Acrotocarus mirabilis*, female, dorsal.

tween insertions of lateral caudal setae; basal portion with 20–30 short, crescentic elevations on upper surface, elevations oriented longitudinally; hyaline lobes rounded behind, without distinctive ornamentation. Lateral folds or investiture of genital parts thinly sclerotized, open in front. Four pairs anogenital setae: 2 pairs paragenitals, 2 pairs paranals. Anterior paragenitals (45) flagelliform, longer than posterior paragenitals (30). Anterior

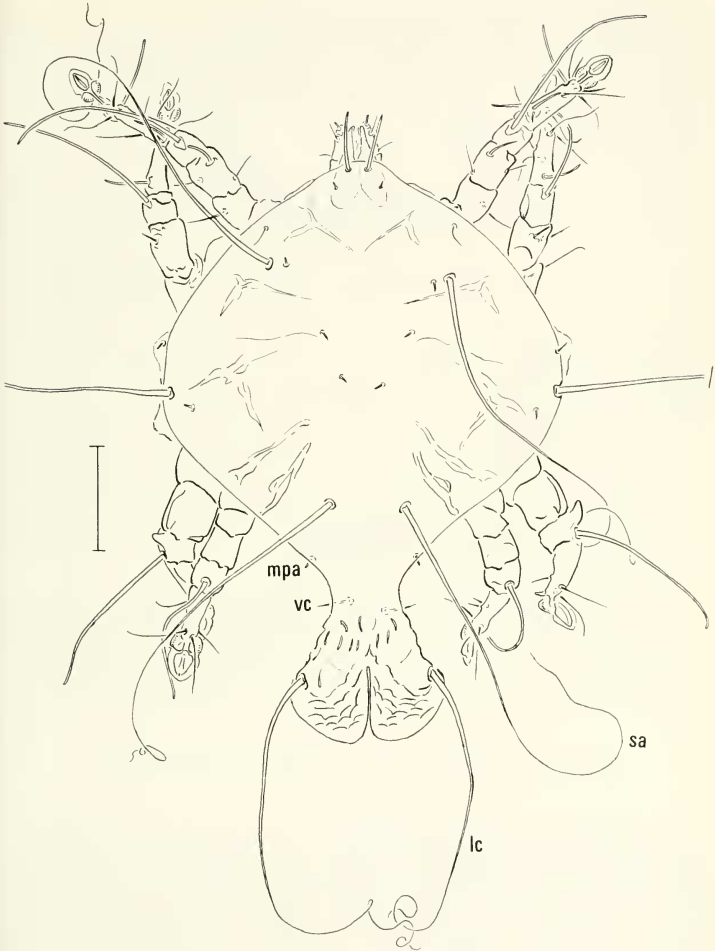


Fig. 3. *Acrotocarus alutaceus*, male, dorsal.

paranal setae set much farther apart than posterior pair, setae of both pairs acicular, equal in length (25). Ventral caudal setae (28) set close together behind narrowest part of caudal peduncle. Length or dimensions of several parts:  $w_1$  43,  $w_3$  66,  $\phi I$  198,  $\phi III$  179,  $\phi IV$  117,  $d_1$  8,  $vi$  55, width of caudal flaps between lateral caudal setae 251, length of each hyaline flap from lateral caudal seta to posterior rim 137.

Female.—Idiosoma a wide oval, with no peculiar caudal extension. Two additional pairs of minute dorsal setae appear in females:  $d_3$  and  $lp$ . Minute setae  $mpa$  set far apart on ventrolateral integument. Two pairs of ultralong setae on posterior border of opisthosoma. Ovipore and associated paragnathial folds placed in mid-ventral section of idiosoma, remote from anus. A pair of ventral (sternal) setae situated in front of male genitalia not recognizable as such in females. Two pairs of paragenital setae, both pairs flagelliform, setae of posterior pair aligned in a crossrow with genital suckers. Four pairs of paranal setae disposed in 2 groups: 2 pairs closer to front end of anal slit, 2 pairs closer to rear end of slit. Anal slit flanked by 2 pairs of very small ringlike structures each having a peg at its center; anteriormost of these structures aligned with second pair of paranal setae. Chaetotaxy of appendages not noticeably different from males except  $\phi IV$  very much reduced. Leg III resembles other legs, i.e., not armed with spines or crestlike apophyses. Infraterminal setae on tarsi III and IV not enlarged or clawlike. Length or dimensions of several parts ( $n = 1$ )  $w_1$  35,  $w_3$  59,  $\phi I$  176,  $\phi III$  172,  $\phi IV$  16,  $d_1$  8,  $vi$  51.

Distribution.—MEXICO: Pte. de Ixtla, on *Physonota alutacea* Boheman; Veracruz, on *Physonota* sp.; Las Chiapas, Lago Catemaco, Acayucan, on chrysomelids. GUATEMALA: Cayuga, on *Physonota* sp.; Secanguin, on unidentified host. COSTA RICA: Turrialba, on *Physonota alutacea*.

Originally described from Cordoba, Mexico, on chrysomelids (Banks, 1915).

*Acrotocarus alutaceus* (Turk), NEW COMBINATION

Fig. 3

*Amansia alutacea* Turk, 1948, 118:88.

Male.—General conformation of body closely resembles *A. mirabilis*; unmistakable specific differences relate to tail flaps and genitalia. Caudal flaps much smaller than in *A. mirabilis*, rounded rather than angular at insertions of lateral caudal setae; fleshy portion of tailpiece bilobular or excavate posteriorly; hyaline lobes ornamented with about 6 concentric rows of scalloped ridges. Ventral caudal setae (25) on narrowest portion of peduncle whereas minute postanal ( $mpa$ ) arise higher on tapered part of opisthosoma. Deep-lying genital sclerites enclosed within a quadrangular investiture, this closed in front, reinforced at each anterior corner. Sternal

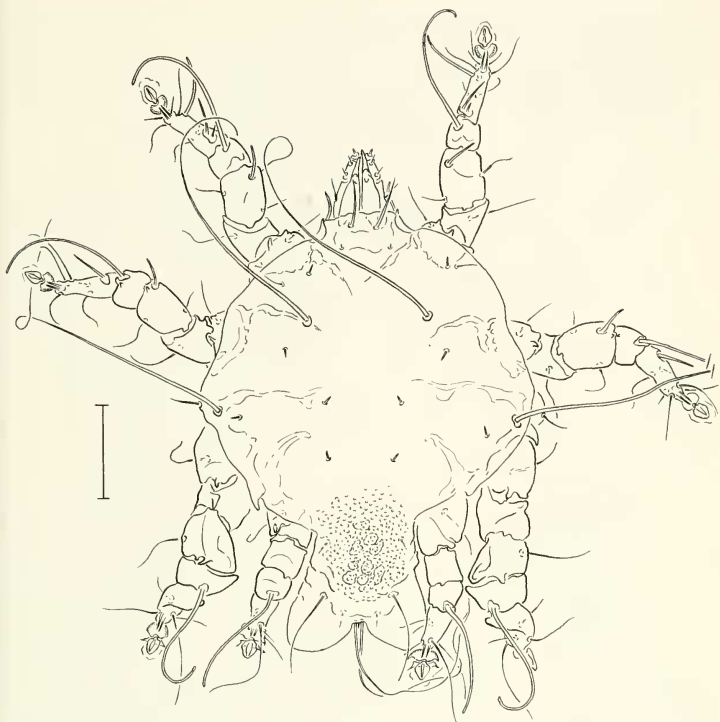


Fig. 4. *Acrotocarus crataepus*, male, dorsal.

setae lie anterior to genitalia by a distance equal to length of these setae. Two pairs of paragenital setae, 2 pairs paranal setae. Second paragenital setae placed considerably behind posterior genital suckers. Posterior apodeme of leg IV nearly a straight bar having a shallow bubble-like lateral outgrowth near its middle. Length or dimensions of several parts:  $w_1$  28,  $w_3$  62,  $\phi I$  164,  $\phi III$  148,  $\phi IV$  98,  $d I$  8,  $vi$  43, width of caudal flaps between lateral caudal setae 152, length of each hyaline lobe from lateral caudal seta to tip 74.

Female.—We have not discovered reliable criteria of form or size by which the female can be distinguished from that of *A. mirabilis*.

Distribution.—MEXICO: San Raphael Jicaltepec, on *Physonota aluta-*

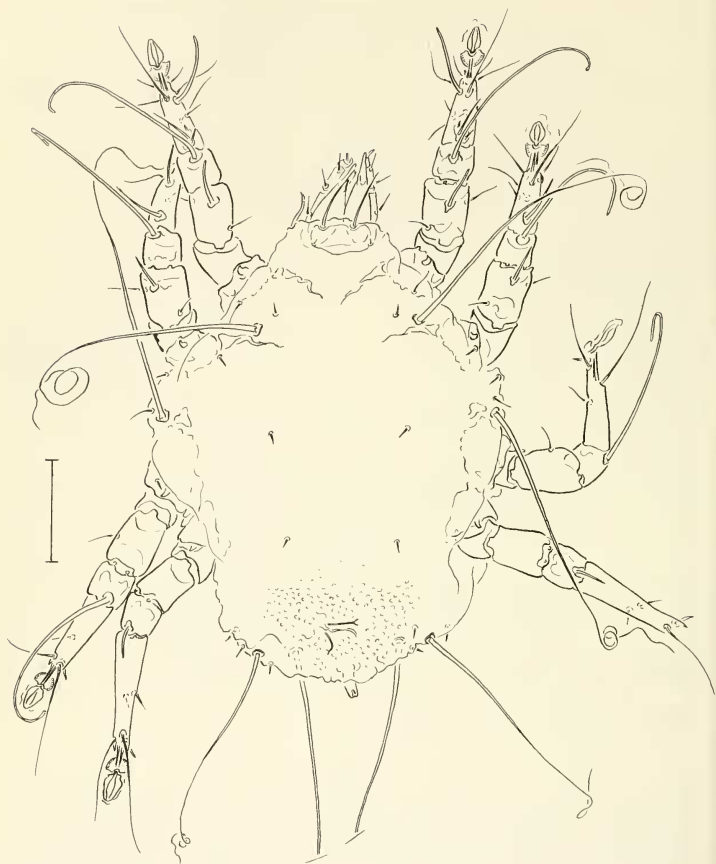
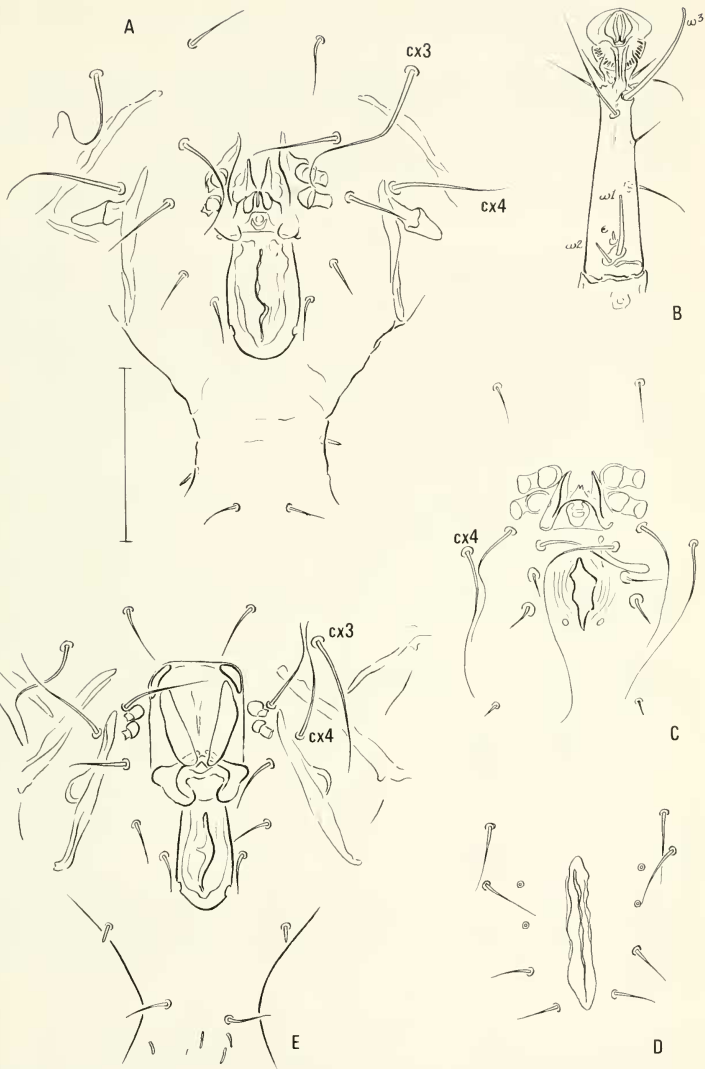


Fig. 5. *Acrotocarus crataepus*, female, dorsal.

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 Fig. 6. A, Anogenital area of male, *Acrotocarus mirabilis*. B, Dorsal aspect of left tarsus I, *A. mirabilis*, male. C, Anogenital area of *A. crataepus*, male. D, Anal region of female showing 2 pairs of ring-like structures, *A. mirabilis*. E, Anogenital area of male, *A. alutaceus*. Figures A, C, E drawn to same scale. All index lines represent 0.1 mm. Setae labeled cx3 and cx4 are the ventral setae of their respective coxae.





*cea*; St. Lucrecia, Veracruz, on *Platycycla deruta* Boheman; Los Chorros, on *Physonota gigantea* Boheman; Veracruz, Tinajas, Matias Romero, on chrysomelids.

First described from Trinidad, on *Physonota alutacea* (Turk, 1948).

Three cotypes of *Amansia alutacea* were loaned to us by Dr. Turk. The cotypes were taken from a cassid beetle, *Physonota alutacea*, St. Augustine, Trinidad, host plant—*Cordia cylindrostachya* R. & S.

*Acrotocarus crataepus* Summers and Schuster, NEW SPECIES

Figs. 4, 5

Male.—Dorsal integument plain on podosoma, minutely pebbled on opisthosoma. Minute internal scapular setae placed considerably anterior to ultralong external scapulars. Three pairs of minute dorsomedian setae. Ventral humeral seta blunt-tipped, approx.  $2\times$  as long as  $d1$ . Opisthosoma a stubby projection terminating in a pair of caudal flaps but without a narrowed peduncle; axes of flaps somewhat divergent, flaps separated by a shallow median notch, with a granular texture on upper surfaces. Opisthosoma bears 4 pairs of setae: 2 pairs of small setae ventrally, 1 pair moderately long dorsal setae on flaps, 1 pair ultralong setae deep within median notch between flaps. Genital parts compact, intromittent organ inconspicuous. Two pairs of paragenital setae in postgenital position, almost in a crossrow, setae of both pairs subequal, very long, flagelliform. Two pairs of paranal setae, all subequal, acicular, relatively short (16). Leg IV lacks an obvious posterior apodeme. Empodial claw of tarsus III and IV with a shallow cuff-like armature below. Length or dimensions of several parts:  $w1$  35,  $w3$  66,  $d1$  10,  $vi$  47, width of caudal flaps between dorsal setae on flaps 78, length of each flap from dorsal setae to posteriormost border 66.

Female.—Dorsal integument on opisthosoma with minutely pebbled surface. Three pairs of marginal setae on opisthosoma grouped close to the 2 pairs of ultralong terminal setae; 2 pairs of these small setae may be homologous with the minute setae placed farther forward on body margins of *A. mirabilis* (possible *la*, *lp* of acarids). Copulatory pore (vulva) borne at the tip of a fingerlike, protrusible lobule not noticed in other congeners. No paired ringlike structures beside the anal aperture.

Types.—Holotype male, one paratype female, locality, data and collector unknown, from *Physonota dilata* Kirsch; both types deposited in the Entomology Collection, Department of Entomology, Cornell University, Ithaca, New York 14853. We are greatly indebted to Dr. B. M. O'Connor for permission to describe this species.

KEY TO MALES OF *ACROTOCARUS*

1. One pair of ultralong setae within shallow notch between caudal flaps, setae of this pair very close together . . . *crataepus*, new species

- No ultralong setae within deep cleft separating caudal flaps . . . . . 2
- 2. Membranous investiture of unpaired genital parts open in front ...  
 . . . . . *mirabilis* Banks
- Membranous investiture of unpaired genital parts closed in front,  
 each anterior angle with a strong sclerotic brace . . . . . *alutaceus* (Turk)

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